

Energy Industry Competency Model

Executive Summary

Background

The energy utility industry is facing a potential workforce crisis over the next five to ten years. By 2012, the following job classifications will have large numbers of employees eligible to retire:

- More than half of all non-nuclear power plant operators
- 52% of generation technicians
- 40% of all field force workers (at least for us, this is broader than line workers)
- 46% of engineers

In addition, an increased demand for electricity and natural gas will require new construction and increased workforce demands. To meet the needs for a strong workforce, the expanded infrastructure work and the pending retirements demand that new workers must be brought into the pipeline now. Adding to the workforce now provides the opportunity, for experienced workers to transfer their knowledge and skills, before they leave the industry. To accomplish this knowledge transition, potential candidates must understand the industry work, the skills and competencies required to perform that work and pursue job opportunities.

The energy utility industry needs a mechanism that can be used by educators, workforce investment professionals, and businesses to articulate the skills required to perform the work so that effective screening of candidates can occur and training courses can be developed to prepare candidates for work in the business. The energy competency model is a critical tool in this effort.

A competency model is a collection of competencies that together define successful performance in a particular work setting. Competency models are the foundation for important human resource functions--such as recruitment and hiring, training and development and performance management-- because they specifically define what is essential to select as well as train and develop a diverse, talented candidate pool.

Why a Competency model?

The Energy Industry Competency Building Block model is designed to provide a consistent definition of the competencies required to work in the industry. The model builds from basic fundamentals to more industry and career specific competencies.

The Competency Model consists of stacked tiers increasing in specificity and specialization as the pyramid ascends. Each tier is divided into blocks representing content or the skills, knowledge, abilities and other factors that are essential to successful performance in the industry. Not all competencies are required for all of the jobs in the energy business; for example, all competencies on the lower tiers are not necessarily needed to achieve the competencies needed on upper level tiers.

The competencies reflected at the base of the model (Tiers 1 – 3) represent those needed for success in life and in the foundation for success in school and work. These foundational skills are a needed prerequisite for workers to be able to learn new industry-specific skills.

How Should the Model be Used?

The Competency Building Block model is intended to help teachers, students, workforce investment systems, and potential employees understand the competencies required to work in the energy industry. The model can be used by teachers and workforce investment systems to tailor curriculum to reinforce the competencies. It provides a guideline to match job requirements as identified by employers and skills possessed by potential candidates. Where there are gaps, short-term training programs can be developed to address them or existing programs can be modified.

How are these competencies used in the workplace?

One of the difficulties that students have when taking math, English, or science courses is understanding how the course relates to the real world and the jobs that they wish to pursue. Computer skills, problem solving and decision making are key requirements in energy jobs.

- Algebra – increases problem solving skills which are needed when troubleshooting problems in a power plant station, substation or on a power line.
- Geometry – using diagrams to install new equipment or wiring requires measuring and understanding dimensions and space.
- Physics – understanding the basic concepts of physics such as electrons and protons helps in understanding how electricity is generated, moved along power lines, stepped down in voltage and distributed to customers.
- History/humanities/social sciences – understanding the experiences of other cultures helps in teamwork, collaboration and problem solving.
- English – being able to speak, write and read English helps an individual follow directions, ensure a safe job site, prepare reports and talk to boss, coworkers and customers.